



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,600	01/27/2004	Makio Mizuno	500.44034X00	6153

24956 7590 03/27/2006

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER

MASDON, DAVID T

ART UNIT	PAPER NUMBER
----------	--------------

2188

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10764,600	MIZUNO, MAKIO	
	Examiner	Art Unit	
	David Masdon	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/09/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) was submitted on 11/09/2004.

The submission is in compliance with the provisions of 37 CFR 1.97.

Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings filed on 1-27-2004 have been approved by the examiner.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A CACHE STORAGE SYSTEM THAT ENABLES EXCLUSION OR LOCKING OF AN AREA TO BE ACCESSED.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8, 11-13, 15-16 rejected under 35 U.S.C. 102(b) as being anticipated by Schmuck et al (US 5,987,477).

With regard to claim 1, Schmuck et al discloses a cache storage system connected to a client and at least one storage device through a network, comprising:

a controller; and [(disk controllers) column 3, lines 26-39]

a device; [(machine) column 3, lines 26-39]

wherein said controller controls said device to temporarily store block data which are exchanged between said client and said at least one storage device through said network and which designate a logical address on a storage medium and a data length. [(support disk read and write calls) column 3, lines 26-49]

With regard to claim 2, Schmuck et al discloses a cache storage system according to claim 1, wherein said controller locks an area of said device in said cache storage system designated by a write request when said client issues said write request to said cache storage system. [(file system locks regions) column 17, lines 47-55]

Claim 3 is rejected with same rationale as claim 2.

With regard to claim 4, Schmuck et al discloses a cache storage system according to claim 3, wherein said controller judges, on the basis of a lock

Art Unit: 2188

management table indicating lock status, whether said lock is required or not.

[(lock which holds all existing locks) column 37, lines 59-65]

With regard to claim 5, Schmuck et al discloses a cache storage system according to claim 4, wherein said lock management table at least contains indices for identifying areas of said device in said cache storage system, [(disk file system indexing data records)column 5, line 62 – column 6, line 22] flags indicating said lock status of areas of said device in said cache storage system, [(tokens used to indicate lock status) column 4, lines 9-17] and flags for indicating said lock status of areas in said storage device corresponding to said areas of said device said cache storage system. [(additional lock states)column 5, lines 51-60]

With regard to claim 6, Schmuck et al discloses a cache storage system according to claim 3, wherein said controller issues permission a request of said lock received from said client to said client and invalidates said request of said lock when there is no response/confirmation to said permission after issuing of said permission. [(access control list control permission for file system operations) column 26, lines 40-60]

With regard to claim 8, Schmuck et al discloses a cache storage system according to claim 7, wherein said controller includes an address correspondence table for indicating correspondence areas in said cache storage

Art Unit: 2188

system with areas in said storage device. [(hash table to correspond to data) column 27, line 57 – column 28, line 10]

With regard to claim 11, Schmuck et al discloses a cache storage system according to claim 1, wherein said controller locks an area of said device in said cache storage system to give access permission to the client at a point of time when said controller gives communication permission to said client by authenticating said client. [(system locks blocks to allow a node to access it) column 17, lines 20-35]

Claim 12 rejected with same rationale as claim 11.

Claim 13 rejected with same rationale as claim 7.

With regard to claim 15, Schmuck et al discloses a cache storage system according to claim 1, wherein upon reception of a read request from said client, said controller sends data to said client when said data is present on said cache storage system, and requests said storage device to send data and sends said data given from said storage device to said client when said data is absent on said cache storage system. [(supporting parallel read and write actions) column 4, lines 9-17]

With regard to claim 16, Schmuck et al discloses a A network storage system comprising:

a client; (column 2, lines 52-67)

at least one storage device for exchanging block data with said client, said block data designating a logical address on a storage medium and a data length; (column 2, lines 27-40)

a cache storage system; (column 24, lines 46-58)

a computer for managing information for identifying said storage device and said cache storage system; (column 4, lines 9-17)

a network for connecting said client, said at least one storage device, said cache storage system and said computer to one another; and (column 1, lines 5-10)

a proxy device connected to said network and disposed between said client and said cache storage system for acting as a substitute for said client, wherein said proxy device acquires information identifying said cache storage system from said computer, executes client's access to said at least one storage device through said cache storage system in place of said client on the basis of said identifying information and sends a result of the execution to said client. (column 26, lines 40-60)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2188

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9, 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Schmuck et al (US 5,987,477) as applied above to claim 7, and in view of Holland (US 2003/0187860).

As per claim 9, Schmuck et al does not disclose expressly cache storage system according to claim 7, wherein said controller encrypts data when said controller sends said data to said storage device. However, Holland discloses network level encryption implementing the privacy and integrity portions of a security model. (page 3, section 0028)

Schmuck et al and Holland are analogous art because they are from same field of endeavor, namely locking in data storage systems. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the encryption of Holland into the system of Schmuck et al. The motivation for doing so would have been to create a more secure network. (Holland; page 3, section 0028)

Claim 14 rejected with same rationale as claim 9.

8. Claims 7,10 rejected under 35 U.S.C. 103(a) as being unpatentable over Schmuck et al (US 5,987,477) as applied above to claim 3, and in view of Lautzenheiser (US 5,590,300).

Art Unit: 2188

As per claim 7, Schmuck et al does not disclose expressly a cache storage system according to claim 3, wherein said controller issues a write request to an area in said storage device corresponding to said area of said device in said cache storage system to write contents of said area of said device in said cache storage system when said client issues no request to process said area of said device in said cache storage system. However, Lautzenheiser discloses allowing data to be written from cache to storage device, after no data has been written for a predetermined period of time. (abstract, lines 1-20)

Schmuck et al and Lautzenheiser are analogous art because they are from same field of endeavor, namely cache memory. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the system of unlocking after a predetermined time of Lautzenheiser into the system of Schmuck et al. The motivation for doing so would have been to help prevent memory from overloading or having a bottleneck. (Lautzenheiser; column 2, lines 28-60)

Claim 10 rejected with same rationale as claim 7.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krein et al	6,385,701
Kutwata	6,845,426

Art Unit: 2188

Cooper et al	5,809,527
Dawkins et al	6,487,638
Devarakonda et al	5,454,108
Olson	5,353,416
Putzolu	5,835,942

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Masdon whose telephone number is (571)272-6815. The examiner can normally be reached on Monday - Friday, 7am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mano Padmanabhan
3/20/06

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER

Art Unit: 2188

DM